

ATLANTIC WORKS v. BRADY.

BRADY v. ATLANTIC WORKS.

1. Letters-patent granted to Edwin L. Brady, Dec. 17, 1867, for an improved dredge-boat for excavating rivers, are invalid for want of novelty and invention.
2. The design of the patent laws is to reward those who make some substantial discovery or invention, which adds to our knowledge and makes a step in advance in the useful arts. It was never their object to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures.
3. Although letters-patent are not set up by way of defence in an answer, yet if the invention patented thereby is afterwards put into actual use, their date will be evidence of that of the invention on a question of priority between different parties.
4. One person receiving from another a full and accurate description of a useful improvement cannot appropriate it to himself; and letters-patent obtained by him therefor are void.

APPEALS from the Circuit Court of the United States for the District of Massachusetts.

The case is stated in the opinion of the court.

Mr. William A. Abbott and *Mr. Albert A. Abbott* for Brady.

Mr. Assistant Attorney-General Maury, *contra*.

MR. JUSTICE BRADLEY delivered the opinion of the court.

This case arises upon a bill in equity filed by Edwin L. Brady against The Atlantic Works, a corporation of Massachusetts, having workshops and a place of business in Boston, praying for an account of profits for building a dredge-boat in violation of certain letters-patent granted to the complainant bearing date Dec. 17, 1867, and for an injunction to restrain the defendants from making, using, or selling any dredge-boat in violation of said letters-patent. The bill was filed on the 9th of April, 1868, and had annexed thereto a copy of the patent alleged to be infringed. The following are the material parts of the specification: —

“The excavator consists of a strong boat propelled by one or two propellers placed in the stern of the boat. I prefer two pro-

pellers, as affording greater power and rendering the boat more manageable in steering in crooked channels. This propeller is driven in the ordinary manner by steam-engines of ordinary construction. Near the bow of the boat I place another steam-engine, driving what I call the 'mud-fan,' which projects from and in front of the bow of the boat. This is formed by a set of revolving blades shown at A, turned like the propellers, by a shaft passing through a stuffing-box, D. The blades are shaped somewhat like those of a propeller, but they are sharper on their fronts and less inclined on their faces. These blades should extend, say, two feet below the bottom of the boat, and their object is by their rapid revolution to displace the sand and mud on the bottom, and stirring them up, to mix them with the water so that they may be carried off by the current.

"The motion of the 'mud-fan' tends to draw forward the boat, assisting the propellers.

"All the engines may be driven by one set of boilers, F, placed amidships. In order that the 'mud-fan' may be brought in contact with the bottom, I construct the boat with a series of watertight compartments, E, placed in the bow and stern, and on each side of the centre amidships, into which the water may be permitted to flow through pipes so as to sink the vessel to the required depth; the compartments being so placed and proportioned that the vessel shall sink with an even keel, by which the effective action of the 'mud-fan,' the propellers, and the steering apparatus is preserved, the boat being manageable at any depth. A large pump, B, driven by the engine, is connected by pipes with all the compartments, so that the water may be pumped out when necessary to raise the boat.

"I am aware that boats have been constructed with compartments to be filled with water, to sink the dredging mechanism to the bottom, by loading the end of the boat in which such mechanism is placed; but this construction is subject to the disadvantage of requiring more complicated machinery for dredging, in order that it may be accommodated to the inclination of the boat, and to the further disadvantage that the boats thus inclined are comparatively unmanageable.

"What I claim as my invention, and desire to secure by letters-patent, is:—

"1. A dredging-boat, constructed with a series of water-tight compartments, so proportioned and arranged that, as they are filled with water, the boat shall preserve an even keel, and the

dredging mechanism be brought into action without any adjusting devices, substantially as set forth.

"2. The combination of the 'mud-fan' attached to a rigid shaft, and a boat containing a series of water-tight compartments, E, so adjusted as to cause the boat to settle on an even keel as the compartments are filled with water, and a pump, B, for exhausting the water from all the compartments, substantially as set forth."

The defendants, in their answer, denied the validity of the patent, and denied infringement of any valid patent of the complainant. They then stated the circumstances under which they came to construct the dredge-boat complained of; namely, that in October, 1867, the government of the United States advertised for proposals for building a dredge-boat for the mouth of the Mississippi River, according to certain plans and specifications; that the defendants, being manufacturers and builders of marine engines and steamboats, examined the plans and specifications, and made proposals for building the boat according to the same; which were accepted; and they at once began the construction of the boat and completed it under the inspection and supervision of a United States officer, in conformity with the stipulations; and the boat went in charge of said officer to the mouth of the Mississippi River; that the said plans and specifications were made and furnished by General McAlester, of the engineer corps of the United States, for the use of the government, and were the result of his own study, observations, and experience, and that so far as they were original he was the author of them. They further alleged by their answer (as amended) as follows: "That the plans and specifications by which the said dredge-boat was constructed were not, and the said dredge-boat itself was not a new invention, or novel and original; but the same, and the principle of said dredge-boat, had been substantially known and publicly used before, to wit, at New Orleans, on the mouth of the Mississippi River, in the year 1859, in the steam dredge-boat 'Enoch Train,' by Charles H. Hyde, by Thomas G. Mackie, and William A. Hyde, copartners, under the firm of Hyde & Mackie, and by Henry Wright, and had also been used and applied in the construction of light-draft monitors, so called, built by the United States government during the late rebel-

lion, and long prior to the alleged patent or invention of the said Brady and the dates of his patent or caveat, and one of which said light-draft monitors was built at the works of these defendants."

The answer further stated that in 1866 and 1867, prior to the date of Brady's alleged invention, he was acting as agent for one Tyler, in carrying out a contract with the government for the improvement of the mouth of the Mississippi River; that General McAlester was then stationed at New Orleans to supervise and inspect, on behalf of the United States, the execution of the contract; that Brady was fitting and preparing a steamboat for the purpose on a plan entirely different from that of his alleged invention; that McAlester then detailed and described to him a plan for a dredge-boat identical with that of the boat constructed by the defendants; which plan McAlester communicated to the board of engineers of the army before the date of the alleged invention by Brady; that Brady's boat was a failure, and the contract was annulled; that then Brady made drawings for a boat on the plan described to him by McAlester, and afterwards claimed to be the inventor of it, and made application for his patent, and obtained the same after the defendants had commenced work on the boat complained of.

Evidence was taken, and on a hearing before Mr. Justice Clifford, in September, 1876, a decree was made sustaining the patent, declaring that the defendants had infringed the same, and referring it to a master to take an account of the profits received by the defendants from the infringement. The master reported the sum of \$6,604.82. Both parties excepted, but their exceptions were overruled, and a final decree, in accordance with the report, was rendered Oct. 9, 1878, with costs. Both parties have appealed.

The most important question, and first to be considered, is the validity of the patent.

It is obvious from reading the specification that the alleged invention consists mainly in attaching a screw (which the patentee calls a mud-fan) to the forward end of a propeller dredge-boat, provided with tanks for settling her in the water. It is operated by sinking the boat until the screw comes in contact with the mud or sand, which, by the revolution of the

screw, is thrown up and mingled with the current. The use of a series of tanks for the purpose of keeping the vessel level whilst she settles is an old contrivance long used in dry-docks, and is shown, by the evidence, to have been used in many light-draft monitors during the late war. The defendants themselves built one of these vessels, the "Casco." Mr. Edwards, the president of the Atlantic Works, in his testimony, says: "The 'Casco' was built double, leaving a water-space on each side nearly the entire length of the vessel, with an arrangement of valves for flooding the compartments at pleasure, for the purpose of sinking the vessel to the desired draft of water, and with powerful steam-pumps to pump the water out for the purpose of raising it in the water. The compartment on the side was divided into several, and one or all of them could be filled as desired. The object was to enable them to put her on an even keel, or to raise or depress one end at pleasure." The employment of their screws by propeller ships, driven stern foremost, for the removal of sand and mud accumulated at the mouths of the Mississippi, had frequently occurred years before the patentee's invention is alleged to have been made. Several French steamers, one of which was named the "Francis Arago," had used this method there prior to the year 1859. In that year the "Enoch Train," a double propeller, that is, having two screws at her stern, was used in the same way by certain contractors under the government, for dredging the mouth of the Mississippi. Mr. Hyde, one of the contractors and owners, in his testimony, describes her construction and operation as follows:—

"She was a propeller of burden between three and four hundred tons, with two propeller screws at her stern, about nine feet in diameter each; the cylinders were thirty-six inches in diameter and thirty-four inches stroke; she had one doctor engine; was fitted also with a large wrecking pump, with two low-pressure boilers; engines were also low-pressure engines. Her draft of water, in ordinary trim, with three hundred barrels of coal on board, was about thirteen feet aft, and a little less at the bows. By ordinary trim I mean the usual sailing trim. The propeller screws were one on each quarter, or each side of the stern-post. Before going to dredging on the bar, I fitted her up

with a water-tight apartment, or tank, at the stern, by a bulk-head running athwartships, say about twenty or twenty-five feet from the stern. That space was divided by a fore-and-aft bulk-head, making two water-tight compartments.

"The mode of filling the compartments was by stop-cocks in the sides of the vessel opening into the water-tight compartment; the draft of water could be increased from her natural draft of water, say thirteen feet to eighteen feet, according to the quantity of water let into the tanks. The mode of operating was by running the vessel up and down over the bar, and thus stirring up the mud with the propeller screws. When the water was too shoal for her to pass over, the stern of the vessel was turned to the bar, and she was run stern on, the engines being reversed. Whenever we got done working on the bar there was a valve in the water-tight compartments for letting the water into the hold of the vessel, from which the water was pumped out of the vessel, by the steam-pumps, and the vessel would then be left at her ordinary draft.

"*Int.* 13. Please to state how you happened to employ this mode of dredging by the 'Enoch Train.'

"*Ans.* Well, I thought it would be an effectual way of removing the mud from the bar; that by the screws coming in contact with the mud and deposit, and the revolutions of the screws about sixty times a minute, would create a current of water by which the sediment would be washed away."

The evidence of Henry Wright, the master of the "Enoch Train," under whose charge her operations were conducted, is to the same purport. He says:—

"We used to work our propellers in cutting up the mud. The operation consisted in cutting through the mud with our propellers. Sometimes we went at the mud stern foremost, sometimes sideways, and sometimes bows on. When I went to the bar at first there was about fifteen feet of water on it, and when I quit operating there were eighteen feet on it in most places. Where the water was shallow we invariably went at the mud stern foremost. The stern was always loaded down to eighteen feet when dredging, but the bows were not loaded down. In dredging, the stern was always several feet lower down than the bows, say three or four feet."

The boat built by the defendants, which was called the "Essayons," was operated in precisely the same way. Being built expressly for dredging, her dredging screw was placed at her stem, it is true; but her mode of operation was the same as that of the "Enoch Train." Her master, Putnam, describes it as follows:—

"The method we use is to go outside the bar into deep water; then we sink the dredging end of the vessel, by filling up the tanks at that end with water to any depth required. Then we start the propelling screw at the other end of the vessel, and go in with that until the vessel grounds; then we stop the propelling screw and start the dredging screw, and as that screw revolves it cuts up the mud at the bottom and drags the vessel after it at the same time; after going as far as we wish we stop the dredging screw, lower the rake at the dredging end, and back out into deep water, using either or both of the screws to go back with, thus dragging the mud after us that the dredging screw has cut up from the bottom, and carrying it out into deep water; or rather, the operation is, that the dredging screw agitates the mud and throws it up into the surface current, and the current takes it out to a large extent, while the rake takes fresh hold of the bottom and also carries out whatever is broken up by the screw and settles from the current. After backing out into deep water, we hoist the rake and go back again and repeat the operation. When we first arrived at the bar we made several experiments as to the best mode of dredging, but the mode above described we found to be the correct one, and have ever since used."

Nearly all the witnesses examined on the subject declare that there is no difference in principle between the mode of operation of the "Enoch Train" and that of the "Essayons." The scraping or raking apparatus is not mentioned in the plaintiff's patent at all. This, as will be hereafter seen, is part of the original design of General McAlester, the government officer who had charge of the improvement of the mouth of the Mississippi.

It is further noticeable that the "Essayons," as is abundantly established by the evidence, always worked with her stem

sunk and depressed, and never with an even keel, upon which special emphasis is placed by the patent in suit.

It may well be asked, at this point, Where was there any invention in the device described in the patent? Was it invention to place a screw for dredging at the stem of the boat? Nothing more than this was in reality suggested by the patentee. And that was substantially what was done with the French steamers prior to 1859, and with the "Enoch Train" in that year. They were turned end for end, and the stern was used as the stem, and the screws went forward, working in the bottom deposit in advance of the vessels. When the "Enoch Train" was procured for the service which she performed, she was ready made, and the contractors, to save time and expense, simply supplied her with a tank, in order to settle her to the proper depth, and they found her very serviceable. Had she been built for a dredge-boat, with the design of using screws for dredging (as she did use them), can it be doubted that her dredging screw would have been placed forward instead of turning her stern forward? Would not this have been suggested by ordinary mechanical skill? The plan and mode of operation would have been precisely the same. When, after this, the government proceeded to build a boat expressly for dredging the mouths of the Mississippi, we should naturally expect to find it built as the "Essayons" was built, with her dredging screws at the stem instead of the stern. The making of them with longer blades than those of the propelling screw, and sharpened at the points, would be a matter of course. No invention would be requisite for any of these arrangements. It seems to us that the whole principle of the "Essayons's" construction and furnishment, as well as that of the patent in question, was anticipated by the "Enoch Train," if not by the French steamers, and that a patent for that principle, though qualified by the natural incidents and adjuncts of its application, ought not to be sustained.

The process of development in manufactures creates a constant demand for new appliances, which the skill of ordinary head-workmen and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development. Each step forward prepares the way for

the next, and each is usually taken by spontaneous trials and attempts in a hundred different places. To grant to a single party a monopoly of every slight advance made, except where the exercise of invention, somewhat above ordinary mechanical or engineering skill, is distinctly shown, is unjust in principle and injurious in its consequences.

The design of the patent laws is to reward those who make some substantial discovery or invention, which adds to our knowledge and makes a step in advance in the useful arts. Such inventors are worthy of all favor. It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the arts. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accountings for profits made in good faith.

But the "Enoch Train" did not exhibit all that was done in the matter of dredge-boats anterior to the alleged invention of Brady. If the application of dredging screws to the stem of a boat, driven by a propellor or otherwise, was not formally exhibited in the "Enoch Train," it was certainly exhibited in the invention of one Ephraim B. Bishop, which was patented in April, 1858, and was applied by Brady himself to a dredge-boat called the "Wiggins Ferry," fitted up and operated by him at the mouth of the Mississippi in 1866. This boat was propelled by an ordinary centre paddle-wheel, and to the bow was fixed two revolving conical-shaped screws, which, on being let down to the river-bottom, cut and stirred up the mud and sand, and caused it to float away in the current. Each screw was driven by a separate steam-engine. Bishop was examined as a witness, and testified that the idea occurred to him from

seeing a stern-wheel boat on the Arkansas River make a channel for herself by turning stern foremost and removing the sediment by the revolution of her propeller. He says:—

“About 1852 or 1853, I was then keeping store at Van Buren, Arkansas. The difficulty of getting goods up the Arkansas River, in consequence of sand-bars, was very great,—so great that we had a cargo of goods, nearly a whole boat-load, that was detained in consequence of sand-bars for at least eight months before she could reach Van Buren from Pine Bluff, Arkansas. Seeing this necessity of removing these obstructions, and knowing all about the usual machines up to that date that had been invented, and their capacity, and knowing of the very great amount of sediment that must be removed to do any good, it appeared to me absolutely necessary that machinery of greater capacity and strength should be invented, and, thinking upon this subject, I thought of and planned out one or more spirally-flanged screws, to be rotated by machinery on deck of a boat or in her hull, with the large ends of the spiral screws down, with sharp cutting corners or points, the screws to revolve right and left powerfully, intended to elevate the sediment up the inclination of the drum by reason of the powerful motion of those drums; the water being comparatively still, would necessarily force the sediment up the inclination of the screws, and throw the sediment off to the right and left into the water, which would carry it to harmless localities. This was the first plan that was afterwards developed into my patent.”

In the fall of 1866 Brady and several other persons associated with him, Bishop himself being interested, made a contract with the government to dredge the Southwest Pass of the Mississippi, and procured for the purpose the “Wiggins Ferry,” and fitted up her bow with Bishop’s apparatus. Brady had the superintendence of her fitting up, and of operating her after she was ready for work. They commenced upon her in November, 1866, but did not get her started until the 19th of March, 1867. After working with her for several months, and finding that she was not strong enough for the work required in the Southwest Pass, and that the sediment would fill up again when she was taken off for repairs (although they

often succeeded in deepening the channel three or four feet), the contract was abandoned. For a common river-bottom she would have answered well enough. Mr. Roy, one of the parties interested in her, and who was on her for several days at the commencement of her operations, says that in the pass, before trying the bar, she worked very successfully. If her machinery was not strong enough for accomplishing the hard work to be done on the bar, she was nevertheless well fitted for lighter dredging, and exemplified in her construction the use of screws at her stem.

It is true that Bishop's patent was not set up by way of defence in the answer; but there is no dispute as to the time it was issued, and that fact, together with Bishop's testimony, makes it clear that his invention, which was exemplified in the "Wiggins Ferry," was made as far back as 1858, anticipating Brady according to his own showing for at least seven or eight years.

It is clear, then, that Brady did not invent the furnishing of vessels with water-tanks, so arranged as to sink them on an even keel; for these had been used long before in the light-draft monitors: he did not invent the use of revolving screws on a dredging-boat, for cutting and stirring up the mud and sediment; for these had been used for that purpose on the French steamers, and on the "Enoch Train," in and prior to 1859: he did not invent the use of water-tanks in a dredging-boat for sinking the screws down to the bottom or bar to be dredged; for this plan had been adopted in the "Enoch Train:" he did not invent the application of screws to the forward end of a dredge-boat, so as to work in advance of the boat; for this had been virtually done on the "Enoch Train," and was formally done on the "Wiggins Ferry," the plan of which had been invented by Bishop in 1858. What, then, did he invent? Did he make a selection and combination of these elements that would not have occurred to any ordinary skilled engineer called upon, with all this previous knowledge and experience before him, to devise the construction of a strong dredge-boat for use at the mouth of the Mississippi? We think not. We think that there is no reasonable ground for any such pretension.

But if a different conclusion could be reached, to our minds it is as certain as any fact depending on conflicting testimony can be, that Brady derived the ideas embraced in his patent from General McAlester, the government officer who in 1866 and 1867 had charge of the improvements at the mouth of the Mississippi River, and that he never conceived these ideas till they were communicated and explained to him by General McAlester during the fitting up of the "Wiggins Ferry" at New Orleans and during the progress of her operations at the Southwest Pass. It is proved by overwhelming evidence that during the whole period of her fitting up, and until it was developed by her working on the bar that she was incapable of performing the work required of her at that place, that Brady regarded and spoke of Bishop's plan as the best possible plan that could be devised, and that although deeply interested in the success of the operations, he never alluded to or hinted at any plan of his own devising different from it. His whole conduct for months, as well as his total silence on the subject of any prior invention made by himself, in all his intercourse with his associates in the contract, with the government officers in charge, and with the superintendents and owners of the foundry where the "Wiggins Ferry" was fitted up, is the strongest possible proof that no such invention as he claims had been projected by him. The witnesses who speak of his conversations and sketches in December, 1865, and early in 1866, as communicated to them with the utmost freedom, with no apparent object so far as they were concerned, must either be mistaken as to the time, or as to the devices described. Interested as he is in the result of the suit, his own testimony cannot be allowed to prevail against a course of conduct so utterly at variance with it. It may be true; but we cannot give it effect against what he himself did, and did not do, without disregarding the ordinary laws that govern human conduct.

During the operations of the "Wiggins Ferry" on the bar, it is true, he did make divers plans and drawings for an improved dredge-boat. The first, made as Lieutenant Payne says, a week or ten days after the vessel arrived at the Southwest Pass (therefore the last of March or first of April), was merely a modification of Bishop's plan, placing the cones

parallel to each other instead of being pointed together in a salient angle, and providing the boat with water-tight compartments by which she could be raised or lowered. He worked at these drawings for some time, and Lieutenant Payne helped him to make tracings of them. In one corner of the drawings on the same sheet two or three screws were exhibited, intended to be used in place of the cones if thought best or desired. It is stated in the bill that on the 17th of May, 1867, Brady filed a caveat in the Patent Office, describing his invention; but the patent was not obtained till the 17th of December following. No copy of the caveat appears in the record, so that we cannot tell what it contained.

Now, where was it that Brady, who had been so enthusiastic upon the superlative merits of Bishop's plan as applied to the "Wiggins Ferry," obtained the new light which resulted in the filing of his caveat the 17th of May, and in the obtaining of his patent in December? The story is told by Lieutenant Payne, who appears to be, not only an intelligent, but an entirely disinterested, witness. He says:—

"In the latter part of February, 1867, at the engineer office, New Orleans, Gen. McAlester told Brady that he had doubts of the successful working of the 'Wiggins,' and in the case of her proving a failure he should suggest to the engineer department a plan of his own for doing that work, which plan he then explained to Brady in my presence. He said he should recommend the building of a strong vessel provided with propellers at each end, and arranged with water-tight compartments, so that the vessel could be raised or lowered at pleasure. She was also to be provided with scrapers, which could be attached at either end, and raised or lowered at will by machinery. She was to have rudders at each end, and be able to move in either direction, either head or stern, equally well. He proposed to try the scrapers first, and if they were not found to work satisfactorily, to try any other device which might be thought practicable. Brady seemed to be much pleased with the idea, but seemed confident of the success of the 'Wiggins.'"

It further appears that General McAlester, in pursuance of his idea, communicated his plans to the government board of engineers, and during the spring and summer of 1867, com-

mencing as early as April, prepared the plans and specifications according to which the "Essayons" was afterwards built. It is very strange that the copy of General McAlester's letters to the department, and several other important exhibits that were put in evidence, have not been inserted in the record used on this appeal. Where the fault lies, it is not for us to say. Sufficient appears, however, notwithstanding the evidence adduced to the contrary, consisting mostly of the testimony of the complainant himself, to convince us that Brady derived his whole idea from the suggestions of General McAlester; and that the plans for the construction of the "Essayons" originated entirely with that officer.

Our conclusion is, that the patent sued on cannot be sustained, and that the decree of the Circuit Court must be reversed, and the cause remanded with instructions to dismiss the bill of complaint.

Decree reversed accordingly.

NEW YORK GUARANTY COMPANY v. MEMPHIS WATER
COMPANY.

1. An assignee of a chose in action, or any other *cestui que trust*, cannot, merely on the ground that his interest is an equitable one, proceed in a court of equity to recover his demand. *Hayward v. Andrews*, 106 U. S. 672, cited upon this point and approved.
2. The courts of the United States especially, in view of the act of Congress declaring that suits in equity shall not be sustained where there is a plain, adequate, and complete remedy at law, should enforce this rule.
3. Certain parties holding bonds secured by a mortgage filed their bill to recover moneys alleged to be due on a contract which the city of Memphis made with the mortgagor, and which was assigned in the mortgage as part of the security for the bonds. *Held*, that the bill will not lie, the demand against the city being cognizable at law in the name of the mortgagor, and no special circumstances shown for a resort to equity.

APPEAL from the Circuit Court of the United States for the Western District of Tennessee.

The case is stated in the opinion of the court.

Mr. William M. Randolph for the appellants.

Mr. Joseph B. Heiskell for the appellees.